SECTION 2.3.3

MATTOLE RIVER WATERSHED

The Mattole River in Mendocino and Humboldt Counties, California, is listed on California's 303(d) report as a water quality limited waterbody requiring the establishment of a Total Maximum Daily Load (TMDL) due to sedimentation and temperature. The North Coast Regional Water Board has scheduled the completion of the TMDL for sediment for late 2002 and for temperature for late 2003. The key stakeholder concern for the Mattole River is the decline of the once healthy coho and chinook salmon fisheries, thought to be associated with excess sediment load and elevated water temperatures.

WATERSHED DESCRIPTION

The Mattole River starts in northern Mendocino County, and flows north 62 river miles, through steep, forested lands into the ocean ten miles south of Cape Mendocino. The watershed encompasses an area of approximately 194,560 acres (304 square miles) and supports a population of over 2,000 people. The main population centers are in Petrolia, Honeydew and Whitethorn, but people are scattered throughout the watershed. Small landowners (less than 450 acres) own 43 percent of the land, Bureau of Land Management (BLM) owns about 12 percent, and commercial timber companies own much of the remaining land. The area is subject to intense rainfall from 50 inches per year near the mouth to 115 inches per year near Honeydew. The main tributaries to the Mattole River include East Branch North Fork Mattole, Upper North Fork Mattole, Mill Creek, Squaw Creek, Bear Creek, Thompson Creek, Honeydew Creek, and Bridge Creek

From 1947 to 1987 an estimated 82 percent of the timber was harvested. By 1988 over 90 percent of old-growth forests had been harvested and by 1996 late seral habitats comprised less than 8 percent of the original forest cover. A large part of the late seral stage acreage lies within the King Range National Conservation Area. Twelve percent of the Mattole watershed lies within this management which, since 1991, has been managed as a Spotted Owl Habitat Conservation Area. The "one hundred year" floods of 1955 and 1964 deposited hundred of tons of sediment into the river system from which the Mattole River has yet to recover. Floods also occurred in 1995 and 1997.

The Mattole is widely recognized as being a landscape prone to excessive erosion due to tectonic movement, slope instability, and high levels of rainfall. The tectonic Mendocino Triple Junction of the Pacific, North American, and Gorda Plates makes the Mattole the most seismically active watershed in the continental United States. Most of the Mattole is underlain by coastal belt rocks, is highly unstable and uplifts 1-2 cm/year. A 1993 inventory estimated 3,350 miles of active and abandoned roads in the Mattole basin, with 115 miles maintained by the county, 25 miles maintained by BLM, leaving 425 miles of active and 2,800 miles of abandoned roads that are not managed or maintained. In addition to roads that account for approximately 76 percent of human-induced erosion, logging, conversion of forestland to pasture and over grazing contribute to erosion and sedimentation of the streams in the watershed.

The Mattole Restoration Council and the Mattole Salmon Group have been active in the watershed since the early 1980's, and have conducted numerous successful restoration projects and collected valuable data on the declining fisheries. Sanctuary Forest owns about 1,100 acres of old growth forest, and BLM manages about 6,500 acres of old growth (Gillham Butte and Mill Creek Forest). Major timber landowners are Pacific Lumber Company (PALCO), the Bureau of Land Management (BLM) and Barnum Lumber Company. The federal government has classified the Mattole River as

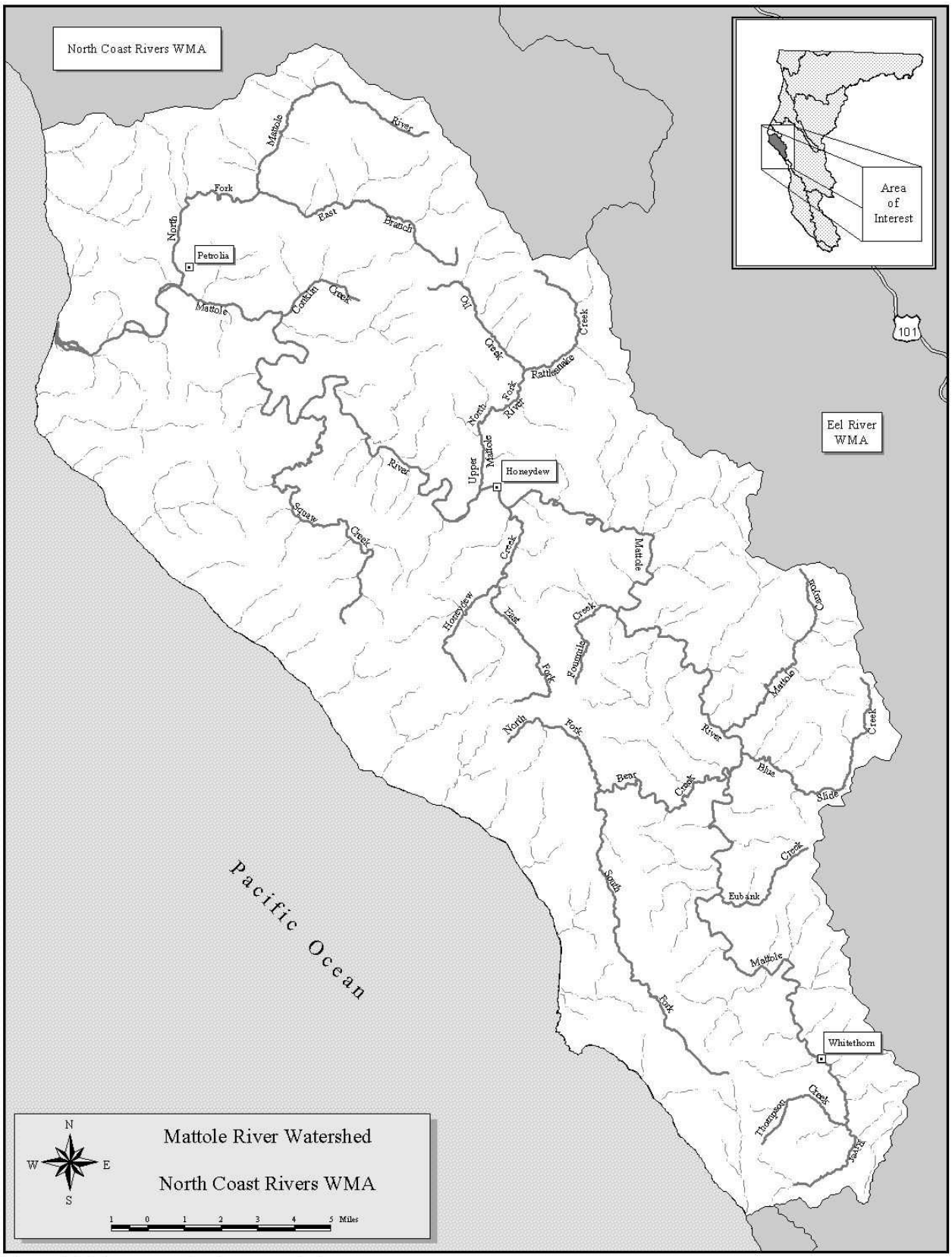

Figure 2.3.3.1. Mattole River Watershed

a Tier 1 Key Watershed essential to the survival of coho and chinook salmon stocks. Known fish species in the Mattole include coho and chinook salmon, steelhead trout, rainbow trout, green sturgeon, and brook lamprey. In addition to anadromous salmonids, species at high risk of extinction include the southern torrent salamander and the tailed frog.

IMPLEMENTATION STRATEGY

Significant strategy development and implementation for water quality protection and improvement are occurring in the Mattole River watershed at the present time by many agencies, interest groups, and individuals. We recognize that the watershed problem identification, watershed assessment, and strategy development are an on-going process, and that further input as we proceed will improve the effort. The intent of the Regional Water Board process is to focus resources on the highest priority issues within a given time frame. As such, this document and the implementation of actions to address issues and achieve water quality goals are flexible. Lower priority issues that are not addressed within a planned cycle will be shifted into the following cycle, likely with higher priority so that they will be addressed. Likewise, it is important to note that some activities necessarily will carry through from one cycle to the next, e.g., monitoring, core regulatory programs, etc. Given the current funding constraints, any new and/or redirected resources should be focused on staffing for field nonpoint source compliance and enforcement inspections.

Institutional framework

The following is a brief description of the existing agency and public framework with respect to water quality issues. It is not all-inclusive and will be refined by the Mattole River Watershed Team and through the public participation process. A matrix of agency's abilities and jurisdictions with respect to the identified goals will be compiled to provide an overall picture for the management area.

The Regional Board has an open public process for permit adoption and renewal, as well as Basin Plan changes. Consistent with that process, a watershed workshop will be held in the watershed, and special task forces or work groups may be formed to help identify water quality issues and strategies. With respect to other agencies and groups in the management area, a list is offered for informational purposes in Appendix 2.3.3-A. It is our intent to continue to coordinate with the listed agencies and groups (and others that may have inadvertently been left out), enhancing our relationships where definite water quality benefits can be realized.

Summary of Activities

The general emphasis in the watershed is to increase assessment activities (including monitoring coordination) and education/outreach, especially regarding erosion control and sedimentation. While maintaining a watchful eye on traditional dischargers, forestry related activities are a high priority.

Two new state programs will improve monitoring and assessment in the watershed beginning in FY 2000-01 and continuing: The North Coast Watershed Assessment Program (NCWAP) is a multi-agency approach to gathering, developing, analyzing and presenting watershed assessments and data for north coast watersheds. In addition to the Regional Water Board, four agencies within the Resources Agency are involved: Department of Fish and Game, Department of Forestry and Fire Protection, Division of Mines and Geology, Department of Water Resources. Each has specific tasks relating to gathering existing data, filling information gaps by collecting new data, analyzing the data, and presenting the resulting watershed assessments in a standardized format for agency, landowners, and watershed groups. NCWAP will be closely coordinated with the Surface Water Ambient Monitoring Program (SWAMP) and the outreach functions of the WMI Coordinator in the Regional Water Board. Within this watershed the following areas are scheduled for assessment in the next three fiscal years.

SWAMP is a regionwide monitoring program that will monitor permanent stations for long-term trends as well as rotate into WMAs on a five-year basis. Up to five stations are scheduled as permanent stations, sampling began in early 2001.

ASSESSMENT AND PROBLEM IDENTIFICATION

The following analysis is based on existing knowledge of issues and problems in the Mattole River watershed from monitoring, discharger regulation, water quality planning and nonpoint source program efforts, and public input. However, the following analysis does not constitute a full assessment and will be refined as we move through the assessment phase. As such, a very cursory description and analysis is presented herein.

The populations of anadromous salmonid species in the Mattole River watershed have declined dramatically since the 1960's. According to the California Department of Fish and Game the carrying capacity of the habitat for fish populations has been seriously degraded due to cumulative adverse impacts caused by timber operations, residential development, private road construction, agricultural operations and other land use practices. Natural events such as wildfires, floods, and earthquakes have also played a major role. Impacts to the fishery are from sedimentation caused by erosion from landslides, streambank failures, and sheet and gully erosion, loss of large woody debris for instream cover, and increased water temperatures due to removal of protective streamside shade canopy. Many tributaries have sediment in storage, in-filling of pools, streambed aggradation, siltation of spawning gravels, fewer plunge pools, reduced flows and moderate migration barriers. Coho salmon that require cool pools scoured by water flow over woody debris or rock outcrops now exist only in the headwaters and its tributaries because habitat in the lower reaches has been lost. In 1981 escapement data indicate 3,000 chinook and 500 coho were present, but by 1989 there were only 150 chinook and 50 coho present. Such information prompted the Department of Fish and Game in 1990 to recommend a zero net discharge of sediment to watercourses, retention of existing large woody debris, and no further increases in water temperature.

In addition to natural, background sediment sources, timber harvesting, salvage logging and roads also contribute sediment to streams and accelerate mass wasting and downstream flooding. The Mattole River estuary, important for fish rearing, is now shallow and warm and may have anoxic zones. Juvenile chinook are no longer found in the Mattole summer lagoon. Riparian zone management is needed on the mainstem and in some tributaries. The U S Geological Survey has been doing sediment sampling at their flow gauging station, and temperature monitoring has occurred throughout the watershed by various entities. Many roads have been inventoried and assessed in a five-county coho effort. For example, the county road upstream of Whitethorn is graded to an outside berm that can wash into the stream.

There are no NPDES permits or Waste Discharge Requirements in the watershed. Blue Slide Creek has a diesel discharge from an above ground tank. Other home heating-oil discharges in the watershed are likely. A problem with an underground tank at the Petrolia Store has been addressed. Herbicide applications on forestlands are limited to hand applications to prevent widespread drift of toxic materials. The Queens Peak Mine on BLM property has recently been recontoured and restored. The Queens Peak mine is actually two mines next to each other—Queens Peak A and Queens Peak B. The primary issues in the Mattole River watershed are lack of large woody debris, high water temperatures, sediment buildup and siltation in the mouth of the river and in the mainstem and tributaries, and increased turbidity. Monitoring needs include water temperature, turbidity, channel morphology, sedimentation, riparian habitat health, marcoinvertebrates, bacteria, and toxics such as fuels.

WATER QUALITY GOALS AND ACTIONS

The following goals and supporting actions are in rough order of priority and reflect the Watershed Team's synthesis of the issues and problems identified from public and agency input. The goals and attendant actions are listed in rough priority as developed by the Watershed Team. Refinement of the goals and strategy through public participation will include scheduling of the actions by fiscal year, seeking support fiscally and otherwise from local agencies and groups, and enhanced interagency and public coordination and cooperation.

The following broad goals provide a perspective from which to view the specific goals and actions presented below: 1) improve coordination, education, outreach, assessment, and monitoring, 2) protect and enhance the anadromous salmonid resources, and 3) protect surface and ground water uses for municipal supply, and recreation.
The three goals for the Mattole River watershed are related through the beneficial uses they address:

- **GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE, EST)**
- **GOAL 2: Protect all other surface water uses**

The protection of cold water fisheries (GOAL 1) requires the protection of surface water (GOAL 2) with additional concerns for siltation, habitat loss, temperature and low tributary flows. Actions for protecting the beneficial uses for GOAL 1 (COLD) largely serve to protect all other uses, except MUN.

GOAL 1: Protect and enhance salmonid resources (COLD, MIGR, SPWN, RARE, EST)
The anadromous fishery has experienced severe decline in the last 40 years. Most notable is the destruction of fish habitat. Natural events and multiple land uses are responsible to varying degrees for sediment contributions through accelerated erosion and mass wasting and include timber production and harvest, road construction and maintenance, and grazing. Increased water temperatures in some parts of the watershed, are issues. Additional upslope erosion controls are needed to reduce sediment delivery to waterways in the Mattole River watershed. We must promote and develop considerations for the stability of stream channels and maintenance of channel form consistent with a functioning hydrologic channel. The riparian and instream habitat components must be enhanced. Instream temperatures for cold-water habitat and adequate stream flows to protect and enhance salmonid resources and COLD will be managed.

GOAL 2: Protect all other surface water uses
The actions above for GOAL 1 largely serve to protect all other uses, however additional issues with regard to beneficial use impairment may arise in the future. If issues do arise, we will address them through this process.

SUMMARY OF WATERSHED ACTIVITIES AND NEEDS

Assessment and Monitoring
NCWAP is currently scheduled to focus on watershed assessment in the watershed in FY 2000-01 and FY 2001-02. That program will gather existing data and collect new data on private and state lands in the WMA. The final product will be an interactive computerized format including the data and watershed assessment. Hard copies of watershed assessments will also be made available to those not having computer access.

SWAMP is a regionwide monitoring program that will monitor permanent stations for long-term trends as well as rotate into WMAs on a five-year basis. Up to five stations are scheduled as permanent stations, sampling began in early 2001.

Education and Outreach
The TMDL process will enhance public and agency participation. Our intent is to improve the recognition of land use impacts on the aquatic environment from nonpoint sources and to foster adaptive management for overall watershed health.

Watershed Coordination
We currently coordinate with local agencies and watershed groups, State and federal agencies on an as-needed basis. Improved coordination is sought as part of the TMDL implementation process. The NCWAP also will require more coordination with landowners and agencies in the watershed.

Core Regulatory
The current level of point source regulation (inspection, monitoring, and enforcement) on traditional dischargers is anticipated and covers above ground tanks, underground tanks, storm water pollution control, landfills, as well as construction related pollution, and gravel management.

Water Quality Certification
The Clean Water Act Section 404 permitting (and associated Section 401 Water Quality Certification required of the Regional Water Board) have been streamlined significantly for salmonid stream habitat restoration activities that follow the California Department of Fish and Game *California Salmonid Stream Habitat Restoration Manual.* Adequate staff funding is needed to completely implement the 404/401 program. Staff continues to pursue innovative approaches to assure appropriate review and certification of all projects. High priority projects (those with a potential for adverse impacts) will continue to receive a complete review.

Ground water
Ground water issues center on petroleum contamination and will continue to receive the current level of activity. Groundwater and surface water contamination is suspected at former and existing mill sites that historically used wood treatment chemicals. Discharges of pentachlorophenol, polychlorodibenzodioxins, and polychlorodibenzofurans likely occurred with poor containment typically used in historical wood treatment applications. These discharges persist in the environment and accumulate in surface water sediments and the food chain. Additional investigation, sampling and monitoring, and enforcement actions are warranted, but insufficient resources exist to address this historical toxic chemical problem

Nonpoint Source Program
Continued involvement in forestry, grazing, and road issues is necessary to ensure protection of aquatic resources. The Regional Board continues implementation of the MAA with U.S. Forest Service for non-timber nonpoint source issues on a very limited basis due to a lack of staff resources. However, this issue is becoming more important as we further evaluate sediment sources in this watershed. The recent listing of coho salmon as threatened under the federal Endangered Species Act has put the spotlight on all land use activities that potentially may increase sedimentation or otherwise affect habitat. The TMDL process will increase work with local agencies and groups regarding land use effects on water quality, following the State Nonpoint Source Pollution Control Program strategy of first emphasizing self-determined implementation of controls to reduce nonpoint source pollution. An outreach program will enhance the effectiveness of the program. Where land management activities are found to be out of compliance with Basin Plan standards, Regional Water Board staff investigation and enforcement actions may be determined necessary.

Timber Harvest:
We have an extensive Timber Harvest program where staff review and inspect timber harvest plans for implementation of the Forest Practice Rules and best management practices to ensure protection of water quality and beneficial uses. We are expanding our program activities on private land in

concert with California Department of Forestry and Fire Protection. We are also expanding our review and inspection of timber sales as well as other projects on U.S. Forest Service lands.

The timber division is specifically funded to oversee the water quality protection of the Habitat Conservation Plan for the Pacific Lumber Company (PALCO) in the North Fork Mattole. The primary water quality issues are the protection of domestic water supplies and nuisance flooding from sediment discharges from PALCO timber harvesting. The primary water quality issues are recovery of threatened and endangered species of coho and chinook salmon and steelhead trout; protection of domestic water supplies and water quality beneficial uses. Forest herbicide application is an issue of concern.

PALCO is subject, in part, to regulation under a Habitat Conservation Plan (HCP). The HCP is intended to protect habitat for endangered species and requires that PALCO incorporate interim prescriptions (best management practices) into its timber harvest and harvest-related activities, while performing watershed analysis for the watersheds within its ownership. As watershed analyses are completed, watershed-specific and project-specific prescriptions will be developed, implemented, monitored, and adapted as necessary. In the interim, PALCO is required to conduct several types of monitoring, including interim prescription effectiveness monitoring.

Local Contacts

We will continue active involvement in the Clean Water Act sections 319(h) and 205(j) grant programs, as well as promoting other programs like the California Department of Fish and Game programs.

Water Quality Planning

The Basin Plan review process feeds into the activities to the extent issues were identified in the Triennial Review and applicable to the Mattole River. The top priority issues are:

- Review the Nonpoint Source Control Measures
- Adopt an implementation plan for sediment reduction

Additionally, the TMDL strategy will be incorporated into the Basin Plan at some future date.

Evaluation and Feedback

We plan to evaluate the overall effectiveness of the process on a yearly basis, adjusting the activities as appropriate. The final evaluation once the Mattole River TMDL is developed (2002) will feed into the next cycle of assessment and problem identification.

BUDGET

We will attempt to fund the highest priority actions as identified in this watershed to the extent funding constraints allow that, and will pursue additional funding for those actions we are currently unable to address.

Appendix 2.3.3-A

Partial listing of agencies and groups in the Mattole River Watershed with an interest and/or responsibility for water quality.

United States
- Environmental Protection Agency
- Army Corps of Engineers
- Forest Service
- Bureau of Land Management
- Geological Survey
- National Biological Service
- Fish and Wildlife Service
- National Marine Fisheries Service
- Natural Resources Conservation Service

California State
- California Environmental Protection Agency
- Resources Agency
- Department of Fish and Game
- Department of Health Services
- Department of Parks and Recreation
- Department of Pesticide Regulation
- Office of Environmental Health and Hazard Assessment
- Department of Toxic Substance Control
- Department of Water Resources
- California Coastal Conservancy
- UC Agricultural Extension
- Humboldt State University
- College of the Redwoods

Humboldt and Mendocino County
- Water Agency
- Planning Department
- Department of Environmental Health
- Agricultural Commissioner's Office

Local Agencies
- Resource Conservation Districts
  - Mendocino County RCD
  - Humboldt County RCD
  - local water districts
  - city planning departments
  - city public works departments
  - county planning departments

Public Interest Groups
- Cattlemen’s Association
- Trout Unlimited
- Salmon Unlimited
- California Forestry Association
- Mattole Salmon Group
- Mattole Restoration Council

Timber Companies
    Pacific Lumber Company
    Barnum Lumber Company